(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 June 2002 (20.06.2002)

PCT

(10) International Publication Number
WO 02/48855 A1

(51) International Patent Classification[7]: G06F 3/12, 17/60

(21) International Application Number: PCT/US00/34044

(22) International Filing Date:
14 December 2000 (14.12.2000)

(25) Filing Language: English

(26) Publication Language: English

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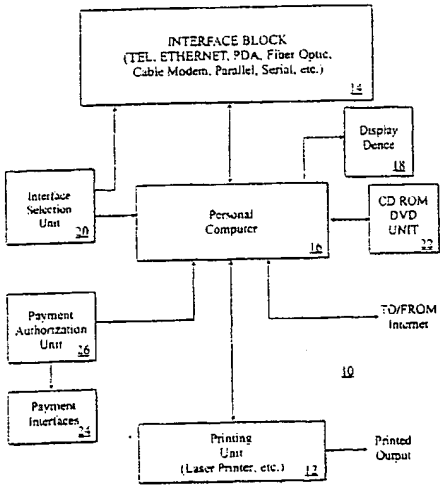
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: KIOSK-TYPE PRINTING/SYNCHRONIZATION STATION FOR HANDHELD AND OTHER COMPUTER SYSTEMS



(57) Abstract: A kiosk statin housing a printing unit adaptable to receive inputs from a number of different interfaces, including at least one interface adapted to receive a personal digital assistant. Such a kiosk station may further house a personal computer adaptable to be coupled to the printing unit. Such a printing unit may be a laser printer, a photo quality printer or other printer. The interfaces which may be available at the kiosk station may include any interface adapted for communication with common computer devices. For example, such interfaces may include a telephone line interface, a fiber optic interface, a cable modem, a parallel port, a serial port, an infra-red port, a Universal Serial Bus port, a digital subscriber line port and/or Ethernet port. Each of these interfaces provides a means for coupling a portable or handheld computer device to the kiosk station, for example to allow printing of electronic documents otherwise transported within these computer systems.

WO 02/48855 A1

KIOSK-TYPE PRINTING/SYNCHRONIZATION STATION FOR HANDHELD AND OTHER COMPUTER SYSTEMS

RELATED APPLICATION

This application is related to, and hereby claims the priority benefit of, a Provisional Patent Application No. 60/104,692, Entitled "Jetstream Communication Center", filed October 17, 1998.

FIELD OF THE INVENTION

The present invention relates to a printing station for use by multiple types of personal/portable/handheld computer systems, which station may also provide access to off-site computer networks, such as the Internet and corporate networks.

BACKGROUND

Handheld and other portable computer systems, for example, notebook and/or laptop computers, have become popular, indeed essential, appliances for today's mobile business professional. In addition, such systems are commonly used by consumers, students, and others seeking to transport considerable amounts of data in a relatively compact fashion. Electronic documents are rapidly replacing printed documents as elements of commerce. Nevertheless, many segments of society have a need for, and indeed often insist upon, printed documents.

This existing need for printed documents presents a complication for those wishing to travel lightly. While personal and/or handheld computer systems may be able to store significant amounts of data, when that data is reduced to printed form it may comprise dozens or even hundreds of printed pages. Clearly, if business professionals and others were required to transport these bulky materials with them from one site to another, their freedom of movement would be significantly restricted.

At the opposite end of the spectrum, many individuals often have a need for a few or even a signal page of printed text. Yet such pages may become damaged during transit, necessitating reprinting thereof. It is far more convenient

for users to transport such materials as electronic documents, however, this presents the problem of having to produce the printed output when needed. In light of these and other factors, it would be desirable to have a means for printing documents at the sites where such printed copies are needed, but otherwise being available in electronic form for transport between sites.

SUMMARY OF THE INVENTION

In one embodiment, a kiosk station housing a printing unit adaptable to receive inputs from a number of different interfaces, including at least one interface adapted to receive a personal digital assistant, is provided. Such a kiosk station may further house a personal computer adaptable to be coupled to the printing unit. Such a printing unit may be a laser printer, photo-quality printing device or other printer.

The interfaces that may be available at the kiosk station may include any interface adapted for communication with common computer devices. For example, such interfaces may include a telephone line interface, a fiber optic interface, a cable modem, digital subscriber line (xDSL) interface, universal serial bus (USB) interface, a parallel port, a serial port, an infra-red port and/or and Ethernet port. Each of these interfaces provides a means for coupling a portable or handheld computer device to the kiosk station, for example to allow printing of electronic documents otherwise transported within these computer systems or accessed from external sources such as corporate networks or the Internet (e.g., content resources accessible therethrough).

In one particular embodiment, the printing unit housed within the kiosk station is adaptable to be coupled to a selected one of the above-mentioned interfaces under the control of an interface selection unit. Such an interface selection unit may comprise one or more switches or other selection means. The kiosk station may also include a payment authorization unit configured to communicate with a payment server that proxies financial transactions across a network, or accept one or more forms of payment (e.g., bills, coins, credit cards, debit cards, I-button cards, Java cards, or other payment means) to control operation of the kiosk station. Preferably, the personal computer of the kiosk station is adaptable to be coupled to one or more off-site computer networks,

and/or the network of networks commonly referred to as the Internet. Such connection will allow users of the kiosk station to interconnect with home networks, business networks, and/or other resources accessible through the Internet. Where such a personal computer is available, one or more of the above-mentioned interfaces may be coupled thereto, thus providing a path to the printing unit. The personal computer may have associated with it a display device, keyboard and/or CD-ROM/DVD reader so as to provide alternative user interfaces during operation of the kiosk station.

These and other features of the present invention will be more fully discussed below.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example in the Figures of the accompanying drawings in which like numerals refer to similar elements, and in which:

Figure 1 illustrates, in block diagram form, various elements of the present kiosk station; and

Figure 2 illustrates one example of a kiosk station configured in accordance with the present invention.

DETAILED DESCRIPTION

Although discussed with reference to certain illustrated embodiments, the present invention should not be limited by the specifics of these examples. Instead, the invention should only be measured in terms of the claims that follow this description.

Referring now to **Figure 1**, an overall block diagram view of the elements of a kiosk station 10 configured in accordance with an embodiment of the present invention is shown. A printing unit 12 may be one element of such a kiosk station. Printing unit 12 may be any form of printer, for example a laser printer, photo quality printing device or other printer, and provides a means for users of

the kiosk station 10 to receive printed copies of electronic documents. As discussed above, the need for such printed documents has not disappeared in day-to-day commerce and, therefore, kiosk station 10 provides a convenient means for mobile professionals and others to print documents which may otherwise be transported electronically. For example, kiosk station 10 may be deployed in areas such as airports, conference centers, copy centers, hotels, photo shops, university campuses, or other areas where it can be anticipated that individuals will have the need for its resources.

To allow access to and use of printing unit 12 by any of a number of different types of devices, an interface block 14 may include one or more of a variety of different interfaces. For example, standard telephone connection (RJ 11) interfaces, Ethernet (RJ 45) interfaces, universal serial bus (USB) interface, firewire (IEEE-1394) interface, digital subscriber line (xDSL) interface, serial and/or parallel ports, cable modem ports, fiber optic interfaces, infra-red interfaces, RS-232, RS-422, or any other type of interface may be deployed. Although shown as an integrated block 14, it should be appreciated that interface block 14 may be made up of a number of different and/or distinct interfaces, each having an independent connection (directly or indirectly) to printing unit 12. By providing a number of different types of interfaces, kiosk station 10 provides ready access for a variety of different users and/or mobile devices. For example, interface block 14 may include cradles or other interfaces for handheld personal digital assistants (PDAs) (e.g., 3Com Palm Pilots™ and the like). Further, notebook computer users are accommodated through the provision of parallel and/or serial ports, as well as telephone ports allowing interconnection via modem. Infra-red ports, xDSL ports and USB ports are becoming popular on both and handheld and notebook computers, thus the provision of an such ports as part of interface block 14 provides for wireless and wired access to kiosk station 10.

Deployed and providing interconnection between printing unit 12 and interface block 14 may be a personal computer, or other computer resource 16. Personal computer 16 may be a conventional personal computer system, having one or more processors and associated memory. Software applications executing on personal computer 16 may provide for user interface functionality as well as

for facilitating the transfer of data between one or more of the interfaces of interface block 14 and printing unit 12. For example, personal computer 16 may execute an application program that provides output to a display device 18. Such output may provide user instructions so as to allow individuals to use the facilities of kiosk station 10.

Interface block 14 may also provide elements of a man/machine interface, for example a conventional keyboard and/or mouse, or other cursor control device, so as to allow for human interaction with personal computer 16 and the other elements of kiosk station 10. In some instances, such a man/machine interface may also be provided, at least in part, through the use of a touch screen display device 18.

In some embodiments, an interface selection unit 20 may also be provided. Interface selection unit 20 may comprise one or more switches or other selection means (e.g., push buttons) so as to allow a user to indicate which interface of interface block 14 is being utilized. That is, when a user wishes to connect to kiosk station 10 via an interface adapted for receiving a personal digital assistant, a switch or other mechanism corresponding to that interface may be engaged. This allows activation of the selected interface and/or provides an indication to personal computer 16 as to which interface inputs should be received from and/or outputs provided to. Another type of interface is a CD-ROM/DVD (compact disk-read only memory/digital video disk) unit 22. Such a unit will allow those users which have information stored on compatible media to gain access to the facilities of kiosk station 10.

Where kiosk station 10 is to be operated for profit, various payment interfaces 24 and/or associated payment authorization units 26 may be deployed. Payment interfaces such as coin/bill slots, credit card magnetic strip readers, etc., may be used to accept various forms of payment from users wishing to utilize the services of kiosk station 10. Also, through a connection to a remote server, payment authorization may be provided. Upon receipt of such payment, a payment authorization unit 26 may provide an indication to personal computer 16 that the use of the kiosk station 10 is permissible. In addition to traditional forms of payment such as coins and bills, new forms of payment such as credit and/or debt cards, I-button cards and/or universal debt/Java cards may be accommodated

within the device or via a payment server that proxies financial transactions across a network by the various payment interfaces 24.

Now referring to Figure 2, one example of a kiosk station 10 configured in accordance with an embodiment of the present invention is shown. Figure 2 presents an external view of a kiosk station 10 which includes work surface 28. Work surface 28 provides an area for users to rest items such as a notebook computer or other unit to be interconnected with kiosk station 10. Positioned at various places on kiosk station 10 are the interface units referred to above. For example, a telephone jack 30, a parallel port 32, serial port 34, Ethernet or other network port 36, and/or infra-red port 38, etc., may be located along one surface of kiosk station 10. The positioning of the ports in such an arrangement provides easy access to the facilities of kiosk station 10. As described above, each of the ports may be associated with an interface selection device 40, such as a conventional push button switch or other selection means. By engaging the associated interface selection device 40, a user can activate a particular port.

Other user interface components of kiosk station 10 may include a coin slot 42 for receiving coins payment, a coin change bin 44 for the return of unexpended funds, an I-button dot receptor 46, which is a dual receptacle for debt fund transactions and user identification, the universal debt/credit/Java card receptacle 48, which may include a conventional magnetic strip reader, and a bill changer 50 for producing coin change from bills. A print output bin 52 may provide a place for various documents generated by the printing unit 12 to be collected by the user. Not shown in this view are functional units such as the personal computer 16, display device 18 and printing unit 12 described above. The location of such components within/around the kiosk station 10 is not critical to the present invention and will, for the most part, be subject to space management and exterior design considerations. Where needed, additional interconnection ports may be provided on other sides of kiosk station 10, so as to allow operation by more than one user at a time.

Thus, kiosk station 10 provides a integrated facility for users to obtain printed output from a variety of computer platforms. In addition, where the personal computer 16 is provided with Internet access, the kiosk station 10 may provide users with such access through one of the interfaces of interface block 14.

This may be especially useful for handheld computer users, as it may allow those users to synchronize their handheld computers with other remote computers assessable through the Internet. In addition, users may be able access off-site networks, such as a home network or an office network, or financial transaction proxy server through such an Internet connection. In general then, the kiosk type printing/synchronization station provides a useful facility for business professionals and other mobile computer users. As noted above, however, the particulars of the embodiments described herein should not detract from the more general aspects of the present invention, which are best understood with reference to the claims which follow.

CLAIMS

What is claimed is:

1. An apparatus, comprising a kiosk station housing a printing unit adaptable to receive inputs from a plurality of interfaces including at least one interface adapted to communicate with a personal digital assistant.

2. The apparatus of claim 1 wherein the kiosk station further houses a personal computer adaptable to be coupled to the printing unit.

3. The apparatus of claim 1 wherein the printing unit comprises a printer unit chosen from the list including: a laser printer and a photo quality printer.

4. The apparatus of claim 1 wherein the plurality of interfaces includes one or more interfaces chosen from the list consisting of: a telephone interface, a fiber optic interface, a cable modem, a parallel port, a serial port, an infra-red port, a Universal Serial Bus port, digital subscriber line port and an Ethernet port.

5. The apparatus of claim 4 wherein the printing unit is adaptable to be coupled to a selected one of the plurality of interfaces under the control of an interface selection unit.

6. The apparatus of claim 5 wherein the kiosk station includes a payment authorization unit capable of communicating with a payment server that proxies financial transactions across a network and/or configured to accept one or more forms of payment and to control operation of the kiosk station.

7. The apparatus of claim 6 wherein the kiosk station includes a personal computer adaptable to be coupled to the printing unit.

8. The apparatus of claim 7 wherein the personal computer is further adaptable to be coupled to the Internet.

9. The apparatus of claim 8 wherein the plurality of interfaces are coupled to the personal computer.

10. The apparatus of claim 8 wherein the kiosk station further includes a display device coupled to the personal computer.

11. An apparatus, comprising a computer system configured to interconnect with a variety of other computer systems through a series of interfaces and a printing unit and housed within a single kiosk structure adapted to provide the interfaces on one or more external surfaces thereof.

12. The apparatus of claim 11 wherein the printing unit comprises a printing unit chosen from the list including a laser printer and a photo quality printer.

13. The apparatus of claim 11 wherein the plurality of interfaces includes one or more interfaces chosen from the list consisting of: a telephone interface, a fiber optic interface, a cable modem, a parallel port, a serial port, an infra-red port, a Universal Serial Bus port, a digital subscriber line port and an Ethernet port.

14. The apparatus of claim 13 wherein the printing unit is adaptable to be coupled to a selected one of the plurality of interfaces under the control of an interface selection unit.

15. The apparatus of claim 14 further comprising a payment authorization unit configured to accept one or more forms of payment and to control operation of the computer system.

16. The apparatus of claim 15 wherein the computer system is further adaptable to be coupled to the Internet.

17. The apparatus of claim 16 further comprising a display device coupled to the computer system.

18. The apparatus of claim 17 further comprising a CD-ROM/DVD drive coupled to the computer system.

19. A computer system having a number of interfaces adaptable to be coupled to other computer systems, each under the control of a payment authorization unit.

20. The apparatus of claim 19 further comprising a printing unit coupled to the computer system.

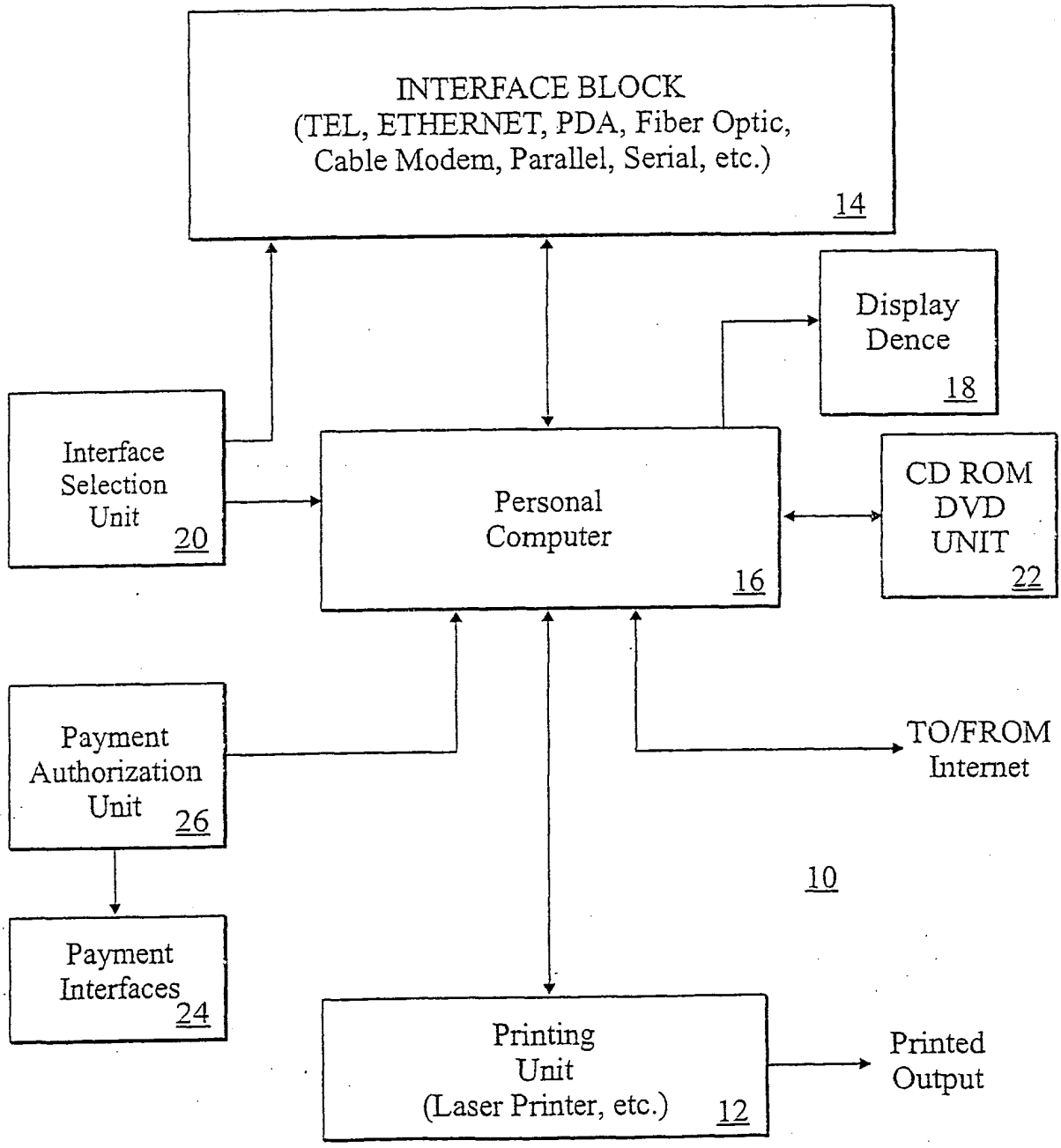

INTERFACE BLOCK
(TEL, ETHERNET, PDA, Fiber Optic,
Cable Modem, Parallel, Serial, etc.)
14
Display
Dence
18
Interface
Selection
Unit
20
Personal
Computer
16
CD ROM
DVD
UNIT
22
Payment
Authorization
Unit
26
TO/FROM
Internet
10
Payment
Interfaces
24
Printing
Unit
(Laser Printer, etc.)
12
Printed
Output

FIG. 1

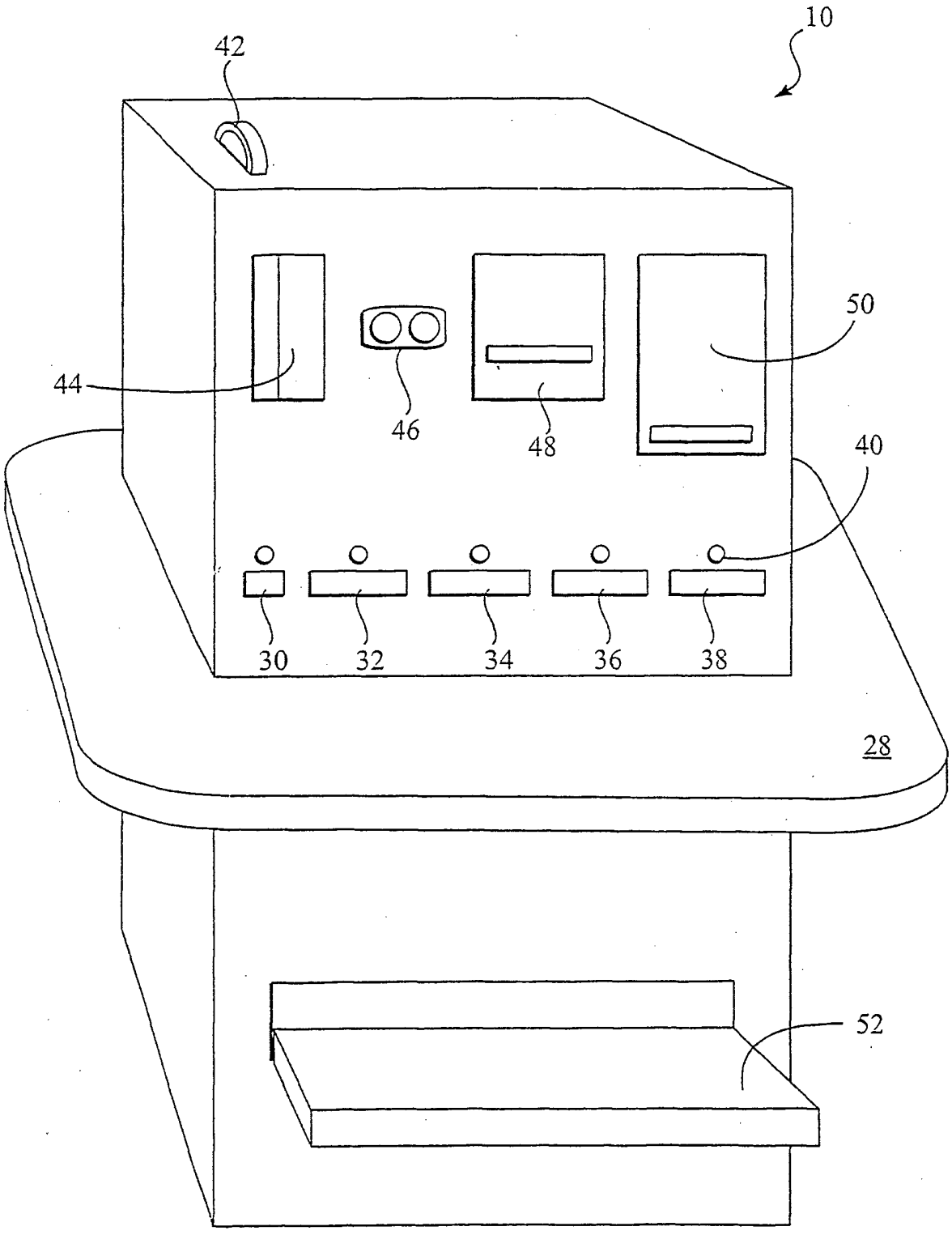


FIG. 2

INTERNATIONAL SEARCH REPORT

Inte ial Application No
PCT/US 00/34044

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F3/12 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06F G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 129 274 A (SUZUKI HIKARU) 10 October 2000 (2000-10-10) figures 1,4,5 column 8, line 30 -column 10, line 26	1,2,4,5, 7-11,13, 14,16,17
A X	US 6 052 671 A (BATTISTA JOHN ET AL) 18 April 2000 (2000-04-18) figures 1-3,5,7 column 3, line 11 -column 4, line 13 column 6, line 13 - line 49 column 8, line 25 -column 10, line 28	1,5,6, 11,13-17 19,20

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
6 September 2001	14/09/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Weiss, P

Form PCT/ISA/210 (second sheet) (July 1992)

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